

## REMARKS

Claims 1-10 are pending in this application. Claims 7-8 have been withdrawn or being directed to a non-elected invention. By this Amendment, the specification and claims 1-3 are amended and new claims 9-10 are added. No new matter is added.

The Office Action objects to the specification because it is asserted that the address for the American Type Culture Collection (ATCC) is incorrect. Applicants believe that this objection is overcome with the above amendments to the specification in which changes suggested by the Examiner have been made. Reconsideration and withdrawal of the objection to the specification are respectfully requested.

The Office Action objects to claims 1-6 because they are drawn in part to a non-elected invention. Applicants believe that this objection is rendered moot with the above amendments to claims 1-2 in which the claims 1-6 have been limited to the elected invention. Reconsideration and withdrawal of the objection to claims 1-6 are respectfully requested.

The Office Action rejects claims 1-2 under 35 U.S.C. §101 because it is asserted that the claimed invention is drawn to non-statutory subject matter. The Office Action also rejects claims 1-6 under 35 U.S.C. §112, second paragraph, as being indefinite. Applicants believe that these rejections are overcome with the above amendments to claims 1-3 in which changes suggested by the Examiner have been made. In particular, the term "sequence" has been deleted to clarify that Applicants are claiming a nucleic acid and not a sequence of symbols. However, it should be understood that the nucleic acid may (or may not) be part of a larger compound that may (or may not) contain portions that are nucleic acid and/or non-nucleic acid. Reconsideration and withdrawal

of the rejections of claims 1-2 under 35 U.S.C. §101 and of claims 1-6 under 35 U.S.C. §112, second paragraph, are respectfully requested.

The Office Action rejects claims 1 and 3-6 under 35 U.S.C. §112, first paragraph, as not being enabled by the present specification. In particular, the Office Action asserts that the present invention does not provide reasonable enablement for a polynucleotide encoding a polypeptide which has at least 85% sequence identity to that of SEQ ID NO: 23.

The Office Action asserts that changes could result in a change of function. However, Applicants respectfully point out that the present claims require an isolated and/or purified nucleic acid which encodes for a protein **having lycopene ε-cyclase enzyme activity**. A nucleic acid that encodes a protein without this activity would not meet the limitations of the present claims.

Additionally, Applicants have provided detailed guidance throughout the present specification of changes that can be included, and particularly from pages 10 to 14 of the present specification.

The Office Action asserts that the present specification "teaches that substituting 5 amino acids can change the product specificity of a lycopene ε-cyclase from ε,ψ-carotene to bicyclic ε-carotene" (see page 8, lines 12-14 of page 8 of the Office Action). Applicants respectfully note that both of the lycopene ε-cyclases referred to continue to have lycopene ε-cyclase enzyme activity, as required by the present claims. Thus, Applicants respectfully submit that, by following the teachings of the present specification, one of ordinary skill in the art would be able make and use the presently claimed invention without any undue experimentation.

For at least the above reasons, it is respectfully submitted that the entire scope of the invention of present claims 1 and 3-6 is fully enabled by the present specification. Reconsideration and withdrawal of the rejection thereof under 35 U.S.C. §112, first paragraph, are respectfully requested.

Applicants respectfully submit that this application is in condition for allowance and such action is earnestly solicited. If the Examiner believes that anything further is desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned representative at the telephone number listed below to schedule a personal or telephone interview to discuss any remaining issues.

In the event this paper is not considered to be timely filed, Applicants respectfully petition for an appropriate extension of time. The Commissioner is authorized to charge payment for any additional fees which may be required with respect to this paper to Counsel's Deposit Account 01-2300, referring to client-matter number 108172-00022.

Respectfully submitted,



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